SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Draft Socioeconomic Assessment for Proposed Amendments to Rule 1309.1–Priority Reserve–and Proposed Re-Adopted Rule 1315–Federal New Source Review Tracking System

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EXECUTIVE SUMMARY

A socioeconomic analysis was conducted to assess the impacts of Proposed Amended Rule (PAR) 1309.1 (Priority Reserve) and Proposed Re-Adopted Rule 1315 (Federal New Source Review Tracking System), and the alternatives for Rule 1309.1 identified in the Environmental Assessment. There are no socioeconomic impacts associated with re-adoption of Rule 1315. A summary of the analysis and findings are presented below.

Elements of Proposed Rule Amendments	The proposed amendments to Rule 1309.1 will establish air quality, health and economic, and capacity criteria to allow electrical generating facilities (EGF) access to the Priority Reserve. More stringent requirements and higher mitigation fees would be assessed on EGFs located in more polluted areas.
Affected Facilities and Industries	The proposed amendments to Rule 1309.1 will affect nine identified in-Basin EGFs that might access the Priority Reserve. Four of the EGFs are in Los Angeles County, two are in San Bernardino County, and three are in Riverside County. Four of the EGFs are in zone 1, two are in zone 2 and three of the EGFs are in zone 3. The City of Vernon EGF is the only EGF in an environmental justice area (EJA) and cancer risk area (CRA) within the four-county area. These facilities belong to the industry of Fossil Fuel Electric Power Generation [North American Industrial Classification System (NAICS) 221112].
Assumptions of Analysis	The impact of the proposed amendments is evaluated relative to Rule 1309.1 adopted in 2002. Under the 2002 version of Rule 1309.1, affected EGFs would have to obtain offsets in the third-party ERC market since EGFs who did not submit a permit application prior to the end of 2003 are unable to access the Priority Reserve. Under the proposed amendments, EGFs are required to perform a due diligence effort to secure offsets from the third-party market prior to accessing the Priority Reserve, which is to be used only as a last resort. A comparison of third-party market offset prices and mitigation fees is made although EGFs are likely not able to obtain sufficient offsets from the third-party market due to the lack of supply in the market and the projected demand by the affected EGFs.
Compliance Costs	Under the proposed amended rule, the nine affected facilities would pay a total mitigation fee of $426.9 million to purchase the required ERCs from the Priority Reserve. Compliance costs for the affected sources using the third-party market would range from $233.3 million to $453.4 million, with an average cost of $389.5 million, assuming that sufficient offsets were available from the third-party

	market. If only a portion of the required offsets are purchased based on the supply of the third-party market, then the cost for the affected sources would be $102.2 million based on average ERC prices. However, some EGF projects would not be built. The likely consequences would be electricity shortage, rolling blackouts, increased energy prices, and the purchase and use of emergency standby diesel generators. It is too speculative to provide a quantitative analysis of these consequences.
Data Required for Running REMI	At present, specific emission reduction or clean air projects have not been designated for the mitigation fee revenue from the Priority Reserve. Since specific projects have not been identified, costs associated with the relevant control technologies, the geographic distribution of these costs, and the time period in which fees will be spent cannot be quantified. Future mitigation fee projects may not be the same as previously funded mitigation fee projects. The consequence of not building EGFs in light of the shortage of third-party ERCs cannot be fully assessed. In addition, some mitigation fees may be refunded if EGF projects are not built as planned. The lack of data hinders the macroeconomic impact (including employment impact) assessment of the proposed amendments. Thus, a regional economic analysis using the REMI model cannot be performed.
Impacts of CEQA Alternatives	The cost impacts of the proposed amendments and CEQA alternatives are evaluated in terms of mitigation fees and the third-party market. The cost of purchasing offsets from the third-party market is $389.5 million in 2007 dollars for the proposed amendments and all CEQA alternatives. However given the expected shortage in the third-party market, EGFs would be unable to purchase offsets. The proposed project and Alternative C have the highest cost of all the CEQA alternatives, with a cost of $426.9 million for accessing the Priority Reserve in 2007 dollars. Alternatives D and E would result in lower costs of $204.8 and $188.5 million respectively since some EGFs would be unable to access the Priority Reserve and therefore would not pay mitigation fees. However, lower costs for Alternatives D and E do not account for the impacts associated with these EGF projects not being built and it would be too speculative to analyze what actions these EGF projects would take.

INTRODUCTION

The proposed amendments to Rule 1309.1 will establish air quality, health and economic, and capacity criteria to allow electrical generating facilities (EGF) access to the Priority Reserve. The socioeconomic analysis examines the impact of the proposed amendments as well as the CEQA alternatives to the proposed amendments, identified in the Environmental Assessment.

The localized air quality criterion is based on ambient $PM_{2.5}$ concentration levels between 2003 and 2005. Zone 1 designates the area with an average $PM_{2.5}$ concentration less than 18 $\mu g/m^3$; zone 2 is the area with an average $PM_{2.5}$ concentration between 18 and 20 $\mu g/m^3$; and zone 3 is the area with an average $PM_{2.5}$ concentration of greater than 20 $\mu g/m^3$. An Environmental Justice Area (EJA) is where at least 10% of the population is living in poverty (based on 2000 Census data) and either the cancer risk is greater than 1 in a 1,000 (as determined by the SCAQMD Multiple Air Toxics Emission Study MATES II) or the PM_{10} exposure is greater than 46 $\mu g/m^3$ based on SCAQMD monitoring station data.

EGFs in zone 2 or 3 are required to meet more stringent requirements for cancer risk and chronic and acute hazard indices in order to access the Priority Reserve. In addition, zone 2 EGFs and zone 3/EJA EGFs with a maximum capacity of 500 MW must meet certain emission limitations and zone 3/EJA EGFs with a maximum capacity of greater than 500 MW must meet more stringent requirements to access the Priority Reserve.

To discourage the siting of EGFs in the most polluted areas of the Basin, proposed mitigation fees are 50% higher for EGFs in zone 2 and 100% higher for EGFs in zone 3 or an EJA or cancer risk area (CRA) than zone 1 fees. Mitigation fees (excluding administrative costs) will be used to fund pollution reduction projects in the local communities where EGFs are located, with at least one-third of the fees used for alternative and renewable energy projects.

REGULATORY HISTORY

Rule 1309.1 was adopted in June 1990 to establish emission reduction credits for specific priority sources such as low-emitting facilities and essential public services to construct or modify their facilities. This rule has subsequently been amended six times.

In May 1991, the rule was amended to allow for-profit water delivery and public transit projects access to the Priority Reserve. The December 1995 rule amendment addressed state and federal regulatory requirements, replaced the community bank with a four ton per year exemption level, streamlined trading zones, forgave exempt emission increases due to the transition from ozone-depleting compounds, in addition to administrative changes. The May 1991 and December 1995 socioeconomic analyses were performed for all of the Regulation XIII rules and not for Rule 1309.1 specifically. The April 2001 amendment granted new EGFs temporary access to the Priority Reserve only for PM_{10} credits; the socioeconomic analysis estimated that the costs could range from $31.1 to $48.6 million for PM_{10} ERCs, depending on whether the third-party market or Priority Reserve was used to purchase ERCs. The November 2001 amendment allowed EGFs to access the Priority Reserve for SOx, CO, and PM_{10} credits, the transfer of these credits from the District's NSR account as necessary, and modification of a mandatory requirement for EGFs

to sell electricity to the State of California. The socioeconomic impacts for the November 2001 amendments were determined not to be significant. The May 2002 amendments allowed a critical public works project access to the Priority Reserve.

In September 2006 the AQMD Governing Board adopted amendments to provide EGFs access to the Priority Reserve and directed staff to develop additional requirements for EGFs proposing to locate in the more polluted areas within the AQMD. The proposed amendments define additional criteria for EGFs to access the Priority Reserve.

LEGISLATIVE MANDATES

The socioeconomic assessments at the AQMD have evolved over time to reflect the benefits and costs of regulations. The legal mandates directly related to the assessment of the proposed amendments include the AQMD Governing Board resolutions and various sections of the California Health & Safety Code (H&SC).

AQMD Governing Board Resolutions

On March 17, 1989 the AQMD Governing Board adopted a resolution that calls for preparing an economic analysis of each proposed rule for the following elements:

- Affected Industries
- Range of Control Costs
- Cost Effectiveness
- Public Health Benefits

On October 14, 1994, the Board passed a resolution which directed staff to address whether the rules or amendments brought to the Board for adoption are in the order of cost effectiveness as defined in the AQMP. The intent was to bring forth those rules that are cost effective first.

Health & Safety Code Requirements

The state legislature adopted legislation that reinforces and expands the Governing Board resolutions for socioeconomic assessments. H&SC Sections 40440.8(a) and (b), which became effective on January 1, 1991, require that a socioeconomic analysis be prepared for any proposed rule or rule amendment that *"will significantly affect air quality or emissions limitations."* Specifically, the scope of the analysis should include:

- Type of Affected Industries
- Impact on Employment and the Economy of the district
- Range of Probable Costs, Including Those to Industries
- Emission Reduction Potential
- Necessity of Adopting, Amending or Repealing the Rule in Order to Attain State and Federal Ambient Air Quality Standards
- Availability and Cost Effectiveness of Alternatives to the Rule

Additionally, the AQMD is required to actively consider the socioeconomic impacts of regulations and make a good faith effort to minimize adverse socioeconomic impacts. H&SC Section 40728.5, which became effective on January 1, 1992, requires the AQMD to:

- Examine the type of industries affected, including small businesses
- Consider Socioeconomic Impacts in Rule Adoption

H&SC Section 40920.6, which became effective on January 1, 1996, requires that incremental cost effectiveness be performed for a proposed rule or amendment relating to ozone, carbon monoxide (CO), oxides of sulfur (SO_x), oxides of nitrogen (NO_x), and their precursors. Incremental cost effectiveness is defined as the difference in costs divided by the difference in emission reductions between one level of control and the next more stringent control.

AFFECTED FACILITIES

The proposed amendments to Rule 1309.1 will affect nine identified in-Basin EGFs that might access the Priority Reserve. Four of the EGFs are in Los Angeles County, two are in San Bernardino County, and three are in Riverside County. Four of the EGFs are in zone 1, two are in zone 2 and three of the EGFs are in zone 3. The City of Vernon EGF is the only EGF in an EJA and CRA within the four-county area. These facilities belong to the industry of Fossil Fuel Electric Power Generation [North American Industrial Classification System (NAICS) 221112].

Small Businesses

The AQMD defines a "small business" in Rule 102 as one which employs 10 or fewer persons and which earns less than $500,000 in gross annual receipts. In addition to the AQMD's definition of a small business, the federal Small Business Administration (SBA), the federal Clean Air Act Amendments (CAAA) of 1990, and the California Department of Health Services (DHS) also provide definitions of a small business.

The SBA's definition of a small business uses the criteria of gross annual receipts (ranging from $0.5 million to $25 million), number of employees (ranging from 100 to 1,500), or assets ($100 million), depending on industry type. The SBA definitions of small businesses vary by 6-digit NAICS code. For the fossil fuel electric power generation industry, electricity generation/transmission/distribution establishments selling less than 4 million megawatt hours or sewage treatment establishments with revenue less than $6 million would be considered small businesses.

The CAAA classifies a facility as a "small business stationary source" if it: (1) employs 100 or fewer employees, (2) does not emit more than 10 tons per year of either VOC or NOx, and (3) is a small business as defined by SBA.

Under the above definitions, none of the affected facilities are considered small businesses.

COMPLIANCE COST

The impact of the proposed amendments is evaluated relative to Rule 1309.1 adopted in 2002. Under the 2002 version of Rule 1309.1, affected EGFs would have to obtain offsets in the third-party ERC market since EGFs who did not submit a permit application prior to the end of 2003 are unable to access the Priority Reserve. Under the proposed amendments, EGFs are required to perform a due diligence effort to secure offsets from the third-party market prior to accessing the Priority Reserve, which is to be used only as a last resort. As a result, EGFs should only access the Priority Reserve if third-party market credits are not available. Nevertheless, a comparison of third-party market offset prices and mitigation fees is made although EGFs are likely not able to obtain sufficient offsets from the third-party market due to the lack of supply in the market and the projected demand by the affected EGFs.

Mitigation fees are assessed on the offsets from the Priority Reserve and paid to the District. It is too speculative to project whether future offset prices in the third-party market would be higher than the mitigation fees. As a sensitivity test, prevailing third-party market prices were used to examine the cost of obtaining ERCs from the third-party market by assuming that sufficient ERCs would be generated to meet the projected demand from the EGFs.

Priority Reserve

Mitigation fees for EGFs in zone 2 are 50% higher and mitigation fees for EGFs in zone 3 or EJAs are 100% higher than fees for EGFs in zone 1. Facilities that are denied access to the Priority Reserve would have to go to the third-party market to purchase offsets. It is assumed that none of the 9 EGFs would be denied access to the Priority Reserve.

Under the proposed amended rule, the nine affected facilities would pay a total mitigation fee of $426.9 million in 2007 to purchase the required ERCs from the Priority Reserve, as shown in Table 1.

Table 1─Affected EGFs by Zone and Mitigation Fees

						Cost (millions of dollars)	
Proposed In-District EGFs	**Project Capacity**	**PM_{10}** (lbs/day)	**SOx** (lbs/day)	**CO** (lbs/day)	**Zone/ EJA/ CRA**	**2002 Rule**	**Proposed Amendments (2007)**
AES Highgrove	300 MW	294	30	726	3	$0.0	$48.0
BP Carson Hydrogen Power Project	500 MW	603	9	365	1	0.0	34.9
Competitive Power Ventures LLC, Ocotillo	850 MW	741	74	0	1	0.0	38.5
El Segundo Repower-Dynegy/NRG	630 MW	353	0	0	1	0.0	17.8
Reliant Energy LLC	656 MW	545	58	458	3	0.0	67.7
Riverside Energy Resource – City of Riverside	96 MW	100	10	248	3	0.0	16.3
Sun Valley	500 MW	463	46	1240	1	0.0	38.9
Vernon Power Plant - City of Vernon	943 MW	857	91	720	2/EJA/ CRA	0.0	106.4
Walnut Creek	500 MW	463	46	1240	2	0.0	58.4
TOTAL	**4,919 MW**	**4,419**	**364**	**4,997**	**N/A**	**$0.0**	**$426.9**

SCAQMD has been recently designated as being in CO attainment so that the purchase of CO offsets may not be necessary for the affected EGFs, which could result in a reduction in mitigation fee payments of $60 million.

Third-Party ERC Market

Compliance costs for the affected sources using the third-party market would range from $233.3 million based on the low end of historical third-party ERC prices to $453.4 million based on the high end of ERC prices, with an average cost of $389.5 million, assuming that sufficient offsets were available from the third-party market (Table 2). If only a portion of the required offsets are purchased based on the supply of the third-party market, then the cost for the affected sources would be $102.2 million based on average ERC prices. However, some EGF projects would not be built. The likely consequences would be electricity shortage, rolling blackouts, increased energy prices, and the purchase and use of emergency standby diesel generators. It is too speculative to provide a quantitative analysis of these consequences.

Table 2─2006 Third-Party ERC Market Statistics

	PM_{10} (lbs/day)	SOx (lbs/day)	CO (lbs/day)
ERC Supply (lbs/day)	787	785	2,290
ERC Projected Demand (lbs/day)	4,419	364	4,497
ERC Weighted Price (lbs/day)	$78,796	$34,423	$5,749
ERC Price (lbs/day) - High	$90,000	$50,000	$7,500
ERC Price (lbs/day) - Low	$47,500	$30,000	$2,500

UNAVAILABILITY OF DATA FOR RUNNING REMI

The District's REMI model links the economic activities in the counties of Los Angeles, Orange, Riverside, and San Bernardino. The REMI model for each county is comprised of a five block structure that includes (1) output and demand, (2) labor and capital, (3) population and labor force, (4) wages, prices and costs, and (5) market shares. These five blocks are interrelated. Within each county, producers are made up of 66 private non-farm industries, three government sectors, and a farm sector. Trade flows are captured between sectors and borders as well as across counties and the rest of U.S. Market shares of industries are dependent upon their product prices, access to production inputs, and local infrastructure. The demographic/migration component captures population changes due to births, deaths, migration, and changes to special population (e.g., prisoners and college students); and has 160 ages/gender/race/ethnicity cohorts.

The REMI model is used to assess the total socioeconomic impacts of a policy change. The assessment is performed relative to a baseline without the stipulation of the policy change. In this instance, the baseline would be the 2002 version of Rule 1309.1. Direct effects of the policy change (PAR 1309.1) have to be estimated and used as inputs to the REMI model in order for the model to assess secondary and induced impacts for all the actors in the four-county economy on an annual basis and across a user-defined horizon. Direct effects of PAR 1309.1 will include location and costs of specific emission reduction projects and vendors of control devices. Use of the REMI model requires data on the location of emission reduction projects and their associated components at the county (or finer) level and by industry.

At present, specific emission reduction or clean air projects have not been designated for the mitigation fee revenue from the Priority Reserve. Since specific projects have not been identified, costs associated with the relevant control technologies, the geographic distribution of these costs, and the time period in which fees will be spent cannot be quantified. Future mitigation fee projects may not be the same as previously funded mitigation fee projects. In addition, some mitigation fees may be refunded if EGF projects are not built as planned. The lack of data hinders the macroeconomic impact (including employment impact) assessment of the proposed amendments. Thus, a regional economic analysis using the REMI model cannot be performed.

CEQA ALTERNATIVES

There are five CEQA alternatives associated with the proposed amendments to Rule 1309.1. Alternative A is the No Project Alternative, which is the existing Rule 1309.1 (adopted in September 2006), and would provide the least restrictive requirements to access the Priority Reserve. Alternative B—$PM_{2.5}$ Zones Only—would establish three $PM_{2.5}$ zones with a tiered mitigation fee structure that is the same as the Proposed Project. Alternative C— $PM_{2.5}$ Zones, EJA, and Cancer Risk Applicability—would maintain the three $PM_{2.5}$ zones and make EGFs in an EJA or an area in the top 95th percentile of cancer risk subject to the same fee structure as zone 3 facilities. Alternative D—Limited Access to Priority Reserve with Exceptions—would deny EGFs access to the Priority Reserve if they are located in zone 3 or an EJA or Cancer Risk Area except for municipal EGFs or peakers less than 100 MW. The last CEQA alternative, Alternative E—Most Limited Access to Priority Reserve—would deny EGFs access to the Priority Reserve if they are located in zone 3 or an EJA or Cancer Risk Area.

The cost impacts of the proposed amendments and CEQA alternatives are evaluated in terms of mitigation fees and prices in the third-party market (Table 3). In terms of mitigation fees, the proposed amendments and Alternative C have the highest cost of all the CEQA alternatives, with a cost of $426.9 million for accessing the Priority Reserve. The costs of Alternatives D and E would be $204.8 and $188.5 million, respectively, since some EGFs would be unable to access the Priority Reserve and therefore would not pay mitigation fees. These EGF projects would thus not be built. It would be too speculative to analyze the consequences of not building these EGFs.

The cost of purchasing offsets from the third-party market is $389.5 million in 2007 dollars for the proposed amendments and all CEQA alternatives. However, given the expected shortage in the third-party market, EGFs would be unable to purchase sufficient offsets. Thus, the majority of the EGFs will not be built.

Table 3—Impacts of CEQA Alternatives (in millions of dollars)

Alternative	Priority Reserve	# of EGFs Not Eligible for Priority Reserve	Third-Party Market
Proposed Amendments	$426.9	0	$389.5
Alternative A—No Project (Rule 1309.1 Adopted in 2006)	288.2	0	389.5
Alternative B— $PM_{2.5}$ Zones Only	400.3	0	389.5
Alternative C— $PM_{2.5}$ Zones, Environmental Justice Area, and Cancer Risk Applicability	426.9	0	389.5
Alternative D— Limited Access to Priority Reserve with Exceptions	204.8	3	389.5
Alternative E— Most Limited Access to Priority Reserve	$188.5	4	$389.5

SCAQMD has been recently designated as being in CO attainment so that the purchase of CO offsets may not be necessary for the affected EGFs, which could result in a reduction in mitigation fee payments of $60 million.

RULE ADOPTION RELATIVE TO THE COST-EFFECTIVENESS SCHEDULE

On October 14, 1994, the Governing Board adopted a resolution that requires staff to address whether rules being proposed for adoption are considered in the order of cost-effectiveness. The 2007 Air Quality Management Plan (AQMP) ranked, in the order of cost-effectiveness, all of the proposed control measures for which costs were quantified. It is generally recommended that the most cost-effective actions be taken first. Since Rule 1309.1 is not part of the 2007 AQMP, cost-effectiveness is not applicable. While Proposed Amended Rule 1309.1 is not a control measure included in the AQMP, its requirements are consistent with AQMP objectives.

REFERENCES

South Coast Air Quality Management District. Governing Board packages for Rule 1309.1 amendments and initial rule adoption. June 1990, May 1991, December 1995, April 2001, November 2001, May 2002, July 2006, September 2006.

South Coast Air Quality Management District. Draft Environmental Assessment. Proposed Amended Rule 1309.1—Priority Reserve and Re-Adoption of Rule 1315—Federal New Source Review Tracking System. May 2007.

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